CLAIMS

1. A resin composition for GHz-band electronic components, the composition comprising nanoscale carbon tubes and at least one resin selected from the group consisting of thermoplastic resins, curable resins, and composite resins of thermoplastic resins and curable resins, wherein the nanoscale carbon tubes are present in an amount of 0.0001 to 0.4 wt.% based on the resin.

2. A resin composition for GHz-band electronic components according to claim 1, wherein the nanoscale carbon tubes are:
(i) single-walled carbon nanotubes or nested multi-walled carbon nanotubes;
(ii) amorphous nanoscale carbon tubes;
(iii) nanoflake carbon tubes;
(iv) iron-carbon composites each composed of (a) a carbon tube consisting of nanoflake carbon tubes and nested multi-walled carbon nanotubes, and (b) iron carbide or iron, wherein the iron carbide or iron (b) fills 10 to 90% of the internal space of the carbon tube (a); or
(v) a mixture of at least two of (i) to (iv).

3. A resin composition for GHz-band electronic components according to claim 1, wherein the nanoscale carbon tubes are amorphous nanoscale carbon tubes having an interlayer spacing between hexagonal carbon layers (002) of not less than 3.54 Å, an angle of diffraction (2θ) of not more than 25.1 degrees, and a 2θ band half-width of not less than 3.2 degrees, as determined by X-ray diffractometry (incident X-ray: $CuK\alpha$).

4. A resin composition for GHz-band electronic components according to claim 1, wherein the resin is at least one thermoplastic resin selected from the group consisting of

polyolefin resins, polyester resins, polyamide resins, fluororesins, polystyrene resins, polyvinyl chloride resins, methacrylic ester resins, acrylic ester resins, polycarbonate resins, polysulfone resins, polyethersulfone resins, polyphenylene sulfide resins, polyphenylene ether resins, ABS resins, polyetheretherketone resins, liquid crystal polymers, thermoplastic polyimide resins, polyetherimide resins, polyacetals, polyarylates and polyethernitrile resins.

5. A resin composition for GHz-band electronic components according to claim 1, wherein the resin is at least one curable resin selected from the group consisting of thermosetting resins, photocurable resins and electron-beam-curable resins.

6. A resin composition for GHz-band electronic components according to claim 1, wherein the resin is at least one composite resin selected from the group consisting of thermoplastic resins having dispersed therein cured product of curable resins, and curable resins having dispersed therein a thermoplastic resin.

7. A resin composition for GHz-band electronic components according to claim 1, wherein the amount of the nanoscale carbon tubes is 0.001 to 0.4 wt.% based on the resin.

8. A resin composition for GHz-band electronic components according to claim 1, wherein the nanoscale carbon tubes are single-walled carbon nanotubes or nested multi-walled carbon nanotubes, and wherein the amount of the nanoscale carbon tubes is 0.0001 to 0.1 wt.% based on the resin.

9. A resin composition for GHz-band electronic components according to claim 1, wherein the nanoscale carbon tubes are amorphous nanoscale carbon tubes, and wherein the

amount of the nanoscale carbon tubes is 0.0001 to 0.1 wt.% based on the resin.

10. A resin composition for GHz-band electronic components according to claim 1, wherein the nanoscale carbon tubes are iron-carbon composites, and wherein the amount of the nanoscale carbon tubes is 0.0001 to 0.4 wt.% based on the resin.

11. A resin composition for GHz-band electronic components according to claim 1, wherein the nanoscale carbon tubes are nanoflake carbon tubes, and wherein the amount of the nanoscale carbon tubes is 0.0001 to 0.1 wt. % based on the resin.

12. A GHz-band electronic component obtainable from a resin composition according to claim 1.

13. A GHz-band electronic component according to claim 12, which is a circuit board, an interlayer dielectric, an antenna component, or an insulation material for high frequency coaxial cables.

14. A GHz-band electronic component according to claim 12, wherein tanδ of the resin is reduced to 0.1 or lower in the GHz band while other intrinsic properties of the resin are retained.

15. A method for reducing, or suppressing an increase of, tanδ of an electronic component in the GHz band, the electronic component being obtained from at least one resin selected from the group consisting of thermoplastic resins, curable resins, and composite resins of thermoplastic resins and curable resins;

the method comprising adding nanoscale carbon tubes to the resin in an amount of 0.0001 to 0.4 wt.% based on the resin.

16. A method according to claim 15, wherein the nanoscale carbon tubes are:
(i) single-walled carbon nanotubes or nested multilayer carbon nanotubes;
(ii) amorphous nanoscale carbon tubes;
(iii) nanoflake carbon tubes;
(iv) iron-carbon composites each composed of (a) a carbon tube consisting of nanoflake carbon tubes and nested multi-walled carbon nanotubes, and (b) iron carbide or iron, wherein the iron carbide or iron (b) fills 10 to 90% of the internal space of the carbon tube (a); or
(v) a mixture of at least two of (i) to (iv).

17. A method for reducing, or suppressing an increase of, tanδ, in the GHz band, of an electronic component obtained from at least one resin selected from the group consisting of thermoplastic resins, curable resins, and composite resins of thermoplastic resins and curable resins, compared to tanδ of an electronic component obtained from the resin alone, while maintaining other intrinsic properties of the resin;

the method comprising adding nanoscale carbon tubes to the resin in an amount of 0.0001 to 0.4 wt.% based on the resin.

18. A method according to claim 17, wherein the nanoscale carbon tubes are:
(i) single-walled carbon nanotubes or nested multi-walled carbon nanotubes;
(ii) amorphous nanoscale carbon tubes;
(iii) nanoflake carbon tubes;
(iv) iron-carbon composites each composed of (a) a carbon tube consisting of nanoflake carbon tubes and nested multi-walled carbon nanotubes, and (b) iron carbide or iron, wherein the iron carbide or iron (b) fills 10 to 90% of the internal space of the carbon tube (a); or
(v) a mixture of at least two of (i) to (iv).